

Abstracts

Synthesis of Multi-Section Networks Using the W-Plane

M.C. Horton. "Synthesis of Multi-Section Networks Using the W-Plane." 1970 G-MTT International Microwave Symposium Digest of Technical Papers 70.1 (1970 [MWSYM]): 76-84.

A new calculation technique is presented to minimize roundoff errors that occur in network synthesis of microwave TEM components. Both approximation and synthesis are accommodated in the complex W-plane, transformed from Richards' $S = \tanh(\pi(s)/(2(\omega/\omega_0)))$ plane. The new technique has been applied to non-redundant bandpass filters, to interdigital bandpass filters, and to diplexing filters. Results of calculations indicate that filters and other TEM components having two to three times as many elements can be synthesized in the W-plane as compared to similar calculations performed in the S-plane. The new method is particularly useful in the synthesis of complementary or pseudo-complementary diplexers.

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